Transportation Synthesis Report

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State Practices for Emergency Vehicle Preemption

Prepared for
Bureau of Highway Operations
Division of Transportation Infrastructure Development

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Transportation Synthesis Reports (TSRs) are brief summaries of currently available information on topics of interest to WisDOT technical staff in highway development, construction and operations. Online and print sources include NCHRP and other TRB programs, AASHTO, the research and practices of other state DOTs, and related academic and industry research.

Request for Report

Nationwide, communities are turning to emergency vehicle preemption (EVP) systems for traffic signals. EVP technology allows fire trucks and ambulances to intervene in the normal operation of traffic control systems using wireless communications installed on traffic intersections and emergency vehicles. EVP can significantly reduce response times, and reduce the the risk of emergency/civilian vehicle collisions in the protected areas, the costs of replacing emergency vehicles damaged in crashes, and the legal liability of public agencies when motorists are injured.[1]

[1]Enhancing Public Safety- Saving Lives- Emergency Vehicle Preemption, FHWA-JPO-99-002, http://www.itsdocs.fhwa.dot.gov//JPODOCS/BROCHURE/5@V01!.PDF

Officials experienced in emergency vehicle preemption are praising the rewards of EVP. The RD&T Program was asked to conduct an informal survey of adjacent state DOTs to learn 1) whether EVP is being deployed in their states; 2) whether confirmation lights are used; and 2) degree and location of deployment.

Summary

We made contact with knowledgeable staff at the Illinois, Iowa and Michigan DOTs, and learned that EVP is deployed in all three states in varying degrees and locations. “Confirmation lights” -- white lights that come on above or near a traffic signal when EVP is activated – are also being employed in Illinois and Iowa. The responses from the staff are summarized below (see **Responses**). A reply from Mn/DOT was forthcoming at the time of publication, and that information will be summarized and forwarded to the Bureau of Highway Operations upon receipt.

Responses

- Illinois:
  From: Jim Schoenherr, Chief of Project Implementation Unit, Bureau of Operations
  SCHOENHERRJA@nt.dot.state.il.us
  217- 782-3450
  “In Illinois, Emergency Vehicle Preemption Systems are purchased and operated by the agency or municipality using the device,” Jim said. “Illinois allows the necessary equipment to be installed in our controller cabinets and connected to our controller. We also allow the installation of the necessary sensors and confirmation lights on our mast arm assembly. The system used must be compatible with our system.

"I don't know if there is any breakdown as to the size of the municipalities using the device. For the most part they are used if there are signals on routes frequently used by the emergency vehicles and if the agency possesses the funds to purchase and operate the equipment.

"Should you have further questions, please feel free to call me or our Signal Engineer, Jason Johnson, at 217-557-2070."

- Iowa:
  From: Steve Gent P. E.
  Director, Office of Traffic and Safety
  Steve.Gent@DOT.STATE.IA.US
  515-239-1129
  "The Iowa DOT has joint jurisdiction (the city and DOT jointly own/operate/maintain) on urban primary roadways that go through a city," Steve said. "In general for traffic signals, we provide the new signal and they (the city) maintain and operate it. So to answer your question, yes we do put in preemption equipment for cities that already have these systems or for cities that request them. Some cities also use confirmation lights, while some don't. It depends on what the city has or requests."

- Michigan:
  From: Mike Scheuer
  Supervising Engineer of Traffic Signal Operation
  Scheuerm@mich.gov
  517-335-6687
  "MDOT operates several EVPs, none with confirmation lights," Mike said. "A few are employed for fire stations that may be located on a side road, within about a half block from the signaled intersection that a fire truck will use. Signal preemption is triggered by a fire fighter within the fire station prior to vehicles exiting. MDOT also employs a couple of EVPs along trunk lines averaging about 40,000 ADT on a five-lane cross section. For these units, a signal from the EV cab triggers a sensor on the traffic signal. In most cases, MDOT would avoid using EVPs on busier roads with more signals: there can be some troublesome, synchronization-related issues."